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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,078	10/28/2003	Abderrhamane Ounadjela	60.1543	4157

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Intellectual Property Law Department
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EXAMINER	
PHILLIPS, FORREST M	
ART UNIT	**PAPER NUMBER**
2837	

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,078	OUNADJELA, ABDERRHAMANE	
	Examiner	Art Unit	
	Forrest M. Phillips	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 8-10, 12-15, 18-20, 23-25, 27-28, 31-36 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulsson (US4715470) in view of Hademenos (US4926937).

With respect to claim 1 Paulsson discloses an acoustic borehole source for generating elastic waves through an earth formation comprising a first motorized reaction mass (42 in figure 1) (column 1 line 55) positioned along the axis of a sonde; and at least two pads (66 in figure 2) (column 3 line 14) are connected to said sonde and said first reaction mass using a plurality of pushing rods (64 in figure 1) so that said pads generate elastic waves (column3 lines 58-62) through said earth formation upon acyivation of said first motorized reaction mass.

Paulsson does not disclose variable angle pushing rods, nor that the impedance can be controlled using said plurality of pushing rods.

Hademenos however discloses the use of variable angle pushing rods (30 42 40 44 in figure 6) for connecting a toll to a borehole (column 3 lines 1-13).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Hademenos to use variable angle pushing rods with

the source of Paulsson for the purpose of connecting the source to the borehole in a simplistic and rigid manner. The impedance being varied due to the angle of the pushing rods is an inherent property of providing a force through an angled member.

With respect to claims 2 and 12 Paulsson further discloses anchoring means (column 2 lines 58-59) to anchor said sonde in said borehole.

With respect to claims 3 and 13 Paulsson further discloses wherein at least two of said pads are used to anchor said sonde in said borehole (column 6 lines 51-53).

With respect to claims 4, 14,19 and 27 Paulsson further discloses a receiver array (column 4 line 11) positioned along said sonde for receiving said elastic waves after said elastic waves have passed through a portion of said formation.

With respect to claims 5,15, 20 and 28 Hademenos further discloses wherein said plurality of pushing rods are hingedly connected to the first reaction mass and the pads (refer to figure 6).

With respect to claim 8 Paulsson discloses an acoustic borehole source for generating elastic waves through an earth formation comprising a first reaction mass (342 a in figure 6) and a second motorized reaction mass (342b in figure 6) (column 6 lines 28-29) positioned along the axis of a sonde; at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said first motorized reaction mass and said second motorized reaction mass using a plurality of pushing rods, so that said pads generate elastic waves (column 3 lines 58-62) through said earth formation upon activiation of at least one of said first and second motorized reaction masses.

Paulsson does not disclose the use of variable angle pushing rods.

Hademenos however discloses the use of variable angle pushing rods (30 42 40 44 in figure 6) for connecting a toll to a borehole (column 3 lines 1-13).

With respect to claim 9 Paulsson further discloses wherein said first and second motorized reaction mass are connected to opposite ends of each pad using said pushrods such that said pads move at an angle α relative to said axis (figure 1).

With respect to claims 10 and 25 Paulsson further discloses a compression spring (346 in figure 6) (column 6 lines 28-29) connecting said first and second motorized reaction masses.

With respect to claim 18 Paulsson discloses an acoustic borehole source for generating elastic waves through an earth formation comprising a first motorized reaction mass (42 in figure 1) (column 1 line 55) positioned along the axis of a borehole; and at least two pads (66 in figure 2) (column 3 line 14) wherein each of said at least two pads are connected to said first motorized reaction mass and said borehole using a plurality of pushing rods (64 in figure 1) so that said pads generate elastic waves (column3 lines 58-62) through said earth formation upon activation of said first motorized reaction mass.

Paulsson does not disclose variable angle pushing rods, nor that the impedance can be controlled using said plurality of pushing rods.

Hademenos however discloses the use of variable angle pushing rods (30 42 40 44 in figure 6) for connecting a toll to a borehole (column 3 lines 1-13).

With respect to claim 23 Paulsson discloses an acoustic borehole source for generating elastic waves through an earth formation comprising a first motorized reaction mass (342 a in figure 6) a second motorized reaction mass (342b in figure 6) positioned along the axis of a borehole; at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said first and said second motorized reaction masses using a plurality of pushing rods, so that said pads generate elastic waves through said earth formation upon the activation of at least one of said first and second motorized reaction masses.

Paulsson does not disclose variable angle pushing rods, nor that the impedance can be controlled using said plurality of pushing rods.

Hademenos however discloses the use of variable angle pushing rods (30 42 40 44 in figure 6) for connecting a toll to a borehole (column 3 lines 1-13).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Hademenos to use variable angle pushing rods with the source of Paulsson for the purpose of connecting the source to the borehole in a simplistic and rigid manner. The impedance being varied due to the angle of the pushing rods is an inherent property of providing a force through an angled member.

With respect to claim 24 Paulsson further discloses wherein said first and second motorized reaction mass are connected to opposite ends of each pad using said push rods such that the pads move at an angle α relative to said axis (figure 1).

With respect to claim 31 Paulsson discloses a method of generating elastic waves (column 3 lines 58-62) through an earth formation comprising:

a. providing a sonde having an acoustic borehole source comprised of a first motorized reaction mass (42 in figure 1) positioned along the axis of said sonde and at least two pads (66 in figure 2) wherein each of saidat least two pads are cpnected to said sonde and first reaction mass using a plurality of pushing rods (64 in figure 1);

b. anchoring said sonde at a selected position within the borehole (column 2 lines 57-60)

c. activiating said first motorized reaction mass so that at least one of said at least two pads urges against said borehoele wall to generate elastic waves into the formation (column3 lines 54-62).

Paulsson does not disclose variable angle pushing rods, nor that the impedance can be controlled using said plurality of pushing rods.

Hademenos however discloses the use of variable angle pushing rods (30 42 40 44 in figure 6) for connecting a toll to a borehole (column 3 lines 1-13).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Hademenos to use variable angle pushing rods with the method of Paulsson for the purpose of connecting the source to the borehole in a simplistic and rigid manner. The impedance being varied due to the angle of the pushing rods is an inherent property of providing a force through an angled member.

With respect to claim 32 and 42 Paulsson further discloses receiving said elastic waves after said elastic waves have passed through a portion of said formation (column 4 line 11).

With respect to claims 33 and 36 Paulsson further discloses anchoring said sonde comprises urging at least two of said pads against said borehole wall (column 6 line 51-53).

With respect to claim 34 Paulsson discloses a method of generating elastic waves (column 3 lines 58-62) through an earth formation comprising:

a. providing a sonde having an acoustic borehole source comprised of a first (342 a in figure 6) and a second (342b in figure 6) motorized reaction mass positioned along the axis of said sonde and at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said first reaction mass and said second motorized reaction mass using a plurality of pushing rods (64 in figure 1);

b. anchoring said sonde at a selected position within the borehole (column 2 lines 57-60)

c. preferentially activating said first or second motorized motorized reaction masses so that at least one of said at least two pads urges against said borehoele wall to generate elastic waves into the formation (column 6 lines 13-16).

Paulsson does not disclose variable angle pushing rods, nor that the impedance can be controlled using said plurality of pushing rods.

Hademenos however discloses the use of variable angle pushing rods (30 42 40 44 in figure 6) for connecting a toll to a borehole (column 3 lines 1-13).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Hademenos to use variable angle pushing rods with the method of Paulsson for the purpose of connecting the source to the borehole in a

simplistic and rigid manner. The impedance being varied due to the angle of the pushing rods is an inherent property of providing a force through an angled member.

With respect to claim 35 Paulsson further discloses coordinating the activation of said first or second motorized reaction masses so that at least one of said pads urges against said borehole wall at a predetermined angle relative to the axis of said sonde (column 3 lines 54-62)(column 6 lines12-14).

With respect to claim 41 Paulsson discloses a method of generating elastic waves (column3 lines 58-62) through an earth formation comprising positioning an acoustic borehole source along a borehole wherein said acoustic borehole source is comprised of a first motorized reaction mass (42 in figure 1) positioned along the axis of said borehole and at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said sonde and said first motorized reaction mass using a plurality of pushing rods (64 in figure 1) and activating said first motorized reaction mass (column 3 lines 58-62) so that at least one of said at least two pads urges against said borehole wall to generate elastic waves into the formation.

Paulsson does not disclose variable angle pushing rods, nor that the impedance can be controlled using said plurality of pushing rods.

Hademenos however discloses the use of variable angle pushing rods (30 42 40 44 in figure 6) for connecting a toll to a borehole (column 3 lines 1-13).

With respect to claim 43 Paulsson discloses a method of generating elastic waves through an earth formation comprising positioning an acoustic borehole source along a borehole wherein said acoustic borehole source is comprised of a first (342a in

figure 6) and second (342b in figure 6) motorized reaction masses positioned along the axis of said borehole and least two pads (66 in figure 2), wherein each of said at least two pads are connected to said first motorized reaction mass and said second motorized reaction mass using a plurality of pushing rods (64 in figure 1); preferentially activating said first and second motorized reaction masses so that at least one of said at least two pads urges against said borehole wall to generate elastic waves into the formation (column 6 lines 13-16).

Paulsson does not disclose variable angle pushing rods, nor that the impedance can be controlled using said plurality of pushing rods.

Hademenos however discloses the use of variable angle pushing rods (30 42 40 44 in figure 6) for connecting a toll to a borehole (column 3 lines 1-13).

With respect to claim 44 Paulsson further discloses coordinating the activation of said first or second motorized reaction masses so that at least one of said pads urges against said borehole wall at a predetermined angle relative to the axis of said borehole.

Claims 6-7,11,16-17,21-22,29-30,37-40,45-47 rejected under 35 U.S.C. 103(a) as being unpatentable over Paulsson in view of Hademenos as applied to claims 1-5, 8-10, 12-15, 18-20, 23-25, 27-28, 31-36 and 41-44 above, and further in view of Sakata (US5187331).

With respect to claims 6,16,21 and 29 Paulsson in view of Hademenos discloses the source of claim 1.

Paulsson in view of Hadamenos does not disclose expressly the weight of the motorized reaction masses are designed to accommodate a specific property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

Sakata espressly discloses the weight of the motorized reaction masses are designed to accommodate a specififc property wherein said source property is seleceted from the group consisting of radiation energy, frewquqnecy bandwidth and resonance frequency (column 4 lines 11-13).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Sakata to use a selected weight to govern the frequencies of the source of Paulsson in view of Hademenos.

With respect to claims 7,17, and 30 Sakata further discloses wherein the stiffness of the motorized reaction masses are designed to accommodate aspecific source property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

With respect to claims 11, 26, 45 and 47 Paulsson discloses the source of claim 8 further comprising at least three pads wherein pads are connected at opposite ends toi reaction masses.

Sakata discloses the desirability of having four reaction masses (column5 lines 1-4).

Sakata is being relied on only as to the desireability to have four reaction masses, further more having more reaction masses used in the manner prescribed by

Paulsson would only constitute a duplication of parts, which has been held to require only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

With respect to claim 37 Paulsson further discloses wherein anchoring said sonde comprises urging at least two of said pads against said borehole wall (column 6 lines 51-53).

With respect to claims 38 and 46 Paulsson further discloses receiving said elastic waves after said elastic waves have passed through a portion of said formation (column 4 line 11).

With respect to claim 39 Paulsson further discloses coordinating the activiation of said motorized reaction masses so that at least one of said pads urges against said borehole wall at a predetermined angle relative to axis of said sonde (figure 1).

With respect to claim 46 Paulsson further discloses receiving said elastic waves.

Response to Arguments

Applicant's arguments with respect to claims 1-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Forrest M. Phillips whose telephone number is 5712729020. The examiner can normally be reached on Monday through Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 5712721988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FP

LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER